# 200-, 206-, 209- AND 211-TYPE SELECTORS VOLTAGE TESTS USING SD-90013-01 (J94706) SELECTOR TEST SET

## 1. GENERAL

1.01 This section describes methods of applying potentials used in testing and exercising 200-, 206-, 209- and 211-type selectors by means of the selector test set per SD-90013-01 (J94706).

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 The electrical values and adjusting procedures for 200-, 206-, 209- and 211-type selectors are covered in Section 026-706-701 and the particular test set preparation to be applied in making the electrical tests is given on the circuit requirement table.

1.04 *Selector Circuit:* The selector circuit referred to herein ordinarily consists of the selector magnet coil. However, when a relay or 44-type resistance or a relay in parallel with the 44-type resistance is wired into the circuit so as to be in series with the selector coil during normal circuit operation, it shall be considered as a part of the selector circuit. In checking those requirements where it is necessary to rotate the selector under self-interruptions or under control of the relay wired to its interrupter contacts, the selector circuit shall be extended to include the interrupter contacts with spark protection.

1.05 ***Auxiliary battery*** is used to facilitate providing the required voltage across the selector circuit. Provision is made for connecting this battery into the selector circuit so it may either aid or oppose the office battery voltage. It consists of sufficient dry cells to produce a total voltage on the selection circuit which either equals or slightly exceeds the required voltage. Check the condition of the dry cells in the auxiliary battery at the start of the work to insure that they are in satisfactory condition for testing selectors. (See 3.11 for method of testing dry cells.)

**Explanation of Test Set Preparations Specified on Circuit Requirement Tables**

1.06 ***G/V preparation*** is applied to selectors having battery permanently connected to one terminal of the selector magnet coil where it is not necessary to remove the circuit fuse in order to isolate the selector circuit.

1.07 ***B/V preparation*** is applied to selectors having ground permanently connected to one terminal of the selector magnet coil.

1.08 ***F/V preparation*** is applied to selectors which have battery permanently connected to one terminal of the selector magnet but where the circuit fuse must be removed in order to isolate the selector circuit.

## 2. APPARATUS

2.01 Selector Test Set SD-90013-01 (J94706).

2.02 No. 32A Test Set.

2.03 W1G Cord 12 feet long equipped with 1 No. 310 Plug (or 110 Plug) (1W7A Cord).

2.04 P2J Cord 6 feet long equipped with 2 No. 310 Plugs (or 110 Plugs) (2P9B Cord).

2.05 W2R Cord, 6 feet long, equipped with one No. 310 Plug (2W13A Cord). For use with F/V preparation where the circuit fuse for the selector under test is located within reach of this cord.

2.06 W2EL Cord, 10 feet long, equipped with one No. 310 Plug (2W43A Cord). For use where the fuse for the selector under test is beyond reach of the W2R Cord.

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**2.07** W3B Cord 6 feet 6 inches long.

**2.08** Dry Cells as required.

### 3. METHOD

**3.01** Place all keys of the test set in their normal positions, set the rheostats in their "off" positions and connect the patching cords to the test set in accordance with Fig. 1. In making the connections and tests, observe the points covered in 3.02 to 3.10, inclusive.

**3.02** ***Connection of Battery and Ground to Test Set:*** Connect battery and ground to the test set in either of the following manners: (1) Plug one end of the P2J cord into the BAT-G jack of the test set and the other end into the frame battery and ground supply jack or (2) connect battery and ground to the respectively labeled BAT and G binding posts of the test set.

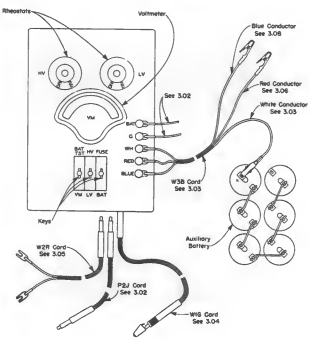


**Fig. 1 — Method of Connecting Selector Test Set**

**3.03** ***Connection of Auxiliary Battery to Test Set:*** Connect the red, white and blue conductors of one end of the W3B cord to the respectively labeled binding posts of the test set. Connect the white conductor of the other end of this cord to the positive (+) terminal of the auxiliary battery and the red and blue conductors to points on the battery as described in 3.06 to 3.09, inclusive.

**3.04** ***Connection of Selector to Test Set:*** Connect the clip or socket end of the W1G cord to the interrupter spring which is wired to the selector magnet coil to check the voltage across the selector circuit and also to check those requirements where it is necessary to rotate the selector step by step. In checking those requirements where it is necessary that the selector rotate under control of its interrupter contacts, connect the clip or socket end of this cord to the interrupter spring terminal which is not wired to the selector magnet coil. For the G/V and B/V preparations plug the other end of this patching cord into the TST jack; but for the F/V preparation plug it into the G jack.

**3.05** ***Connection to Selector Circuit — F/V Preparation Only:*** Remove the circuit fuse. If the fuse can be conveniently reached with the W2R cord, plug the cord into the TST jack of the test set and connect the white (tip) conductor of this cord to the bus bar fuse screw and the red (sleeve) conductor to the fuse post stud. Where the fuse is beyond the reach of the W2R cord, use the W2EL cord. Insert the plug of the W2EL cord in the TST jack of the test set and connect the black conductor with white tracer (tip) to the frame test battery supply terminal and connect the red (sleeve) conductor to any convenient point in the circuit (such as a terminal strip punching or wiring lug) which normally supplies battery to the selector.

**3.06** ***Obtaining High Voltage — G/V and F/V Preparations:*** Operate the HV and VM keys of the test set. For the F/V preparation operate the FUSE key. Connect the red conductor of the W3B cord to the auxiliary battery at a point such that the voltage of the auxiliary battery, when aiding the office battery, will give a voltage equal to or slightly above the required voltage. Where this voltage exceeds the required voltage, obtain the exact voltage required by means of the HV rheostat, exercising care to keep the resistance of the rheostat as low as possible because if the resistance is excessive it will have a decided effect upon the operation of the

selector. If the required voltage can be obtained without using the auxiliary battery, connect the red conductor to the positive pole of the auxiliary battery at the same point as the white conductor is connected. Restore the VM key. When making a running test, leave the HV key operated.

**3.07** ***Obtaining High Voltage — B/V Preparation:*** Proceed as in 3.06 except that in addition to the HV and VM keys, the BAT key of the test set must also be operated.

**3.08** ***Obtaining Low Voltage — G/V and F/V Preparations:*** Operate the (LV) and (VM) keys of the test set. For the F/V preparation, operate the FUSE key. Connect the blue conductor of the W3B cord to the auxiliary battery at a point such that the voltage of the auxiliary battery, when opposing the office battery, will give a voltage equal to or slightly above the required voltage. Where this voltage exceeds the required voltage, obtain the exact voltage required by means of the LV rheostat, exercising care to keep the resistance of the rheostat as low as possible because, if the resistance is excessive, it will have a decided effect upon the operation of the selector. If the required voltage can be obtained without using the auxiliary battery, connect the blue conductor to the positive pole of the auxiliary battery at the same point as the white conductor is connected. Restore the VM key. When making a running test, leave the LV key operated. When making a stepping test, operate and release the LV key for each step of the selector.

**3.09** ***Obtaining Low Voltage — B/V Preparation:*** Proceed as in 3.08 except that, in addition to the LV and VM keys, the BAT key of the test set must also be operated.

**3.10** ***Use of No. 32A Test Set in Testing Selectors at a Distance from the Test Set:*** When testing selectors on the top of the frame, or at a distance from the selector test set, the No. 32A test set may be used in place of the LV and HV keys. Do this by inserting the plug of the No. 32A test set in the EXT KEY jack of the selector test set. Depress the white button for low voltage and the red button for high voltage.

**3.11** ***Checking Condition of Individual Dry Cells Used in Auxiliary Battery:*** To check the condition of the dry cells used in the auxiliary battery, restore to normal all keys of the test set. With the W3B cord connected to the test set as covered in 3.03, connect the white conductor to the positive (+) terminal of an individual dry cell and connect the red conductor to the negative (−) terminal of the cell. Operate the BAT TST key of the test set and observe the reading of the voltmeter. If the reading is less than .55 volt, the dry cell is unfit for further use.